

What is claimed is:

1. A system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle, comprising:
 - a manually manipulated hand controller, movable in a first direction to control the brake pedal and in a second direction to control the accelerator pedal;
 - an actuator assembly including:
 - a first actuator operably coupled to the brake pedal to depress the brake pedal when activated; and
 - a second actuator operably coupled to the accelerator pedal to depress the accelerator pedal when activated;
 - an electrical control system connected between said hand controller and said actuator assembly and operable to activate said first actuator when said hand controller is moved in said first direction and to activate said second actuator when said hand controller is moved in said second direction; and
 - a housing supporting said actuator assembly, said housing pivotably mounted to the vehicle above the brake pedal so that said actuator assembly pivots relative to the vehicle when said first actuator is activated to depress the brake pedal.
2. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 1, further comprising a support arm connecting said hand controller to said housing.
3. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 1, wherein said housing includes:
 - a mounting clamp configured to engage the steering column of the vehicle; and
 - a hinge connecting said housing to said mounting clamp.
4. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 3, further comprising a support arm connecting said hand controller to said mounting clamp.

5. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 1, wherein said housing includes exterior padding.

6. A system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle, comprising:

a manually manipulated hand controller, movable in a first direction to control the brake pedal and in a second direction to control the accelerator pedal;

an actuator assembly including;

a brake actuator system operably coupled to the brake pedal to depress the brake pedal when activated, said brake actuator system including;

a primary electric motor;

a secondary electric motor, operable independent of said primary electric motor; and

a linkage assembly commonly coupling said primary and secondary electric motors to the brake pedal; and

an accelerator actuator system operably coupled to the accelerator pedal to depress the accelerator pedal when activated; and

an electrical control system connected between said hand controller and said actuator assembly and operable to activate said brake actuator system when said hand controller is moved in said first direction and to activate said accelerator actuator system when said hand controller is moved in said second direction.

7. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 6, wherein said linkage assembly includes:

a link bracket mounted to the brake pedal; and

for each of said primary and secondary electric motors:

a drive spindle connected to each said motor;

a rack gear mechanically coupled to said drive spindle; and

a drive link connected between said rack gear and said link bracket.

8. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 6, wherein:

said accelerator actuator system includes a electric accelerator motor; and

said actuator assembly includes a support plate commonly supporting said accelerator motor and said primary and secondary motors.

9. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 9, wherein said support plate is pivotably mounted to the vehicle above the brake pedal so that said support plate pivots relative to the vehicle when said brake actuator system is activated to depress the brake pedal.

10. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 9, wherein said accelerator actuator system includes:

an accelerator drive spindle connected to said accelerator motor;

an accelerator rack gear mechanically coupled to said accelerator drive spindle;

an accelerator drive link connected between said accelerator rack gear and the accelerator pedal; and

a U-joint connected to said accelerator drive link between said accelerator rack gear and the accelerator pedal.

11. A system for use by a physically impaired driver for controlling the brake pedal and/or accelerator pedal of a vehicle, comprising:

an actuator assembly operably coupled to at least one pedal of the brake pedal and the accelerator pedal, said actuator assembly operable in response to control signals to depress said at least one pedal;

a manually manipulated hand controller including;

a body defining a slide channel;

a slide member disposed within said slide channel for sliding movement in a fore-aft direction;

means responsive to the position of said slide member within said slide channel for generating said control signals; and

a joystick assembly mounted to said slide member and manually manipulable to slide said slide member within said slide channel, said joystick assembly including a platform, a gripping post at a forward end of said platform and a pair of offset support posts at a rearward end of said platform arranged to receive the forearm of the driver resting on said platform when the driver is gripping said gripping post.

12. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 11, wherein:

said gripping platform is mounted to said slide member to permit tilting of said platform in a direction substantially transverse to said fore-aft direction; and

said hand controller includes a pair of transversely offset switches arranged underneath said gripping platform so that tilting of said platform actuates a corresponding one of said pair of switches, each of said switches electrically connected to operate a corresponding component of the vehicle.

13. The system for use by a physically impaired driver for controlling the brake pedal and accelerator pedal of a vehicle of claim 12, wherein said gripping platform includes means for preventing tilting of said platform in said fore-aft direction.

14. A system for use by a physically impaired driver for controlling the brake pedal and/or accelerator pedal of a vehicle, comprising:

an actuator assembly operably coupled to at least one pedal of the brake pedal and the accelerator pedal, said actuator assembly operable in response to control signals to depress said at least one pedal;

a manually manipulated hand controller including;

a body defining a slide channel;

a slide member disposed within said slide channel for sliding movement in a fore-aft direction;

means responsive to the position of said slide member within said slide channel for generating said control signals;

a manually grippable joystick assembly mounted to said slide member and manually manipulable to slide said slide member within said slide channel, said joystick assembly including a platform for supporting the forearm of the driver when operating the joystick assembly, said platform supported relative to said slide member to permit tilting of said platform in a direction substantially transverse to said fore-aft direction; and

a pair of transversely offset switches arranged underneath said platform so that tilting of said platform actuates a corresponding one of said pair of switches, each of said switches electrically connected to operate a corresponding component of the vehicle.

15. The system for use by a physically impaired driver for controlling the brake pedal and/or accelerator pedal of claim 14, wherein:

said pair of switches includes a plurality of electrical wires for electrical connection to the corresponding component of the vehicle; and

said slide member defines at least one wiring channel for receiving said plurality of electrical wires therethrough so that said plurality of wires pass through said slide channel in said body of said hand controller without interfering with the sliding movement of said slide member within said slide channel.

16. A system for use by a physically impaired driver for controlling the brake pedal and/or accelerator pedal of a vehicle, comprising:

an actuator assembly operably coupled to at least one pedal of the brake pedal and the accelerator pedal, said actuator assembly operable in response to control signals to depress said at least one pedal;

a manually manipulated hand controller including;

a body defining a channel and an upward facing slot in communication with said channel;

a slide member disposed within said channel for sliding movement in a fore-aft direction;

means responsive to the position of said slide member within said channel for generating said control signals;

a joystick assembly mounted to said slide member and manually manipulable to slide said slide member in said fore-aft direction within said channel;

a slide block connecting said joystick assembly to said slide member, said slide block having a length less than the length of said slide member in said fore-aft direction;

a top plate disposed over said upward facing slot, said top plate defining a housing slot in communication with said upward facing slot and a recess surrounding said housing slot;

a larger slot cover disposed within said recess and having a length less than a length of said recess, said larger slot cover defining a first slot in communication with said housing slot, said first slot having a length greater than the length of said slide block but less than the length of said housing slot; and

a smaller slot cover disposed within said recess between said larger slot cover and said slide block, said smaller slot cover having a length less than the length of said larger slot cover but greater than the length of said first slot, and said smaller slot cover further defining a second slot having a length slightly greater than the length of said slide block and greater than the length of said first slot, but less than the length of said larger slot cover.

17. A system for use by a physically impaired driver for controlling the brake pedal and/or accelerator pedal of a vehicle, comprising:

an actuator assembly operably coupled to at least one pedal of the brake pedal and the accelerator pedal, said actuator assembly operable in response to control signals to depress said at least one pedal;

a manually manipulated hand controller including;

a body defining a slide channel;

a slide member disposed within said slide channel for sliding movement in a fore-aft direction;

means responsive to the position of said slide member within said slide channel for generating said control signals;

a manually grippable joystick assembly mounted to said slide member and manually manipulable to slide said slide member within said slide channel; and

a centering mechanism connected between said slide member and said body to center said slide member within said slide channel, said centering mechanism including two opposing springs, each operably connected to an opposite end of said slide member so that one of said springs is compressed when the other of said springs is extended.

18. The system for use by a physically impaired driver for controlling the brake pedal and/or accelerator pedal of a vehicle of claim 17, wherein said two opposing springs are coil springs aligned in said fore-aft direction.

19. The system for use by a physically impaired driver for controlling the brake pedal and/or accelerator pedal of a vehicle of claim 17, wherein said opposing springs have different spring constants.